Operations and Administration

We are enhancing the operations and management of the Laboratory to ensure the continued viability of our scientific and technical programs and to respond to a changing set of expectations and requirements.

A critical factor in maintaining a world-class scientific research organization is the ability to embed that research in a working environment conducive to and supportive of the unique demands of specialized work. In addition to fostering research, the Laboratory's environment must provide for the safety and health of its employees and the public, serve the business and personnel needs of programs, protect the natural environment, and, in the case of national defense research, protect the security needs of the nation. The Laboratory conducts a vast array of operational and administrative functions to achieve a successful working environment.

LLNL is intimately involved in the changes that are sweeping through the business practices of U.S. industry and government. We are seeking to enhance our management and operational functions at every level. In addition, we are operating under a new, performance- and incentive-based contract to which the University of California (UC) and the DOE agreed in 1992. This contract provides a framework to assist our efforts toward enhanced management. We report here on several major operational functions in the context of the past year's progress toward improvement.

LLNL's Mike Holda (left) received a DOE Individual Achievement Award from Bill White, Deputy Secretary of Energy, for his contributions to energy efficiency.

Plant Operations

Plant Operations provides the Laboratory and its programs with quality services and support in the areas of environment, safety, and health (ES&H); physical plant services; information services; and quality assurance. With an operating budget of more than $150 million and 1600 employees, the directorate is composed of the Environmental Protection Department, the Hazards Control Department, the Health Services Department, Plant Engineering, Information Systems, and the Laboratory Assurance Office.

Our commitment is to meet our customers' needs with responsive, cost-effective, and innovative services. We ensure a work place that runs smoothly and is environmentally safe. We also pursue research and development challenges of importance to both the institution and the nation.

Plant Operations has taken the lead in implementing Continuous Quality Improvement (CQI) at the Laboratory. CQI is an important tool to achieve the dual goals of improved services and lower costs. Activities during the past year included cosponsoring the Quality Tools Forum with Sandia National Laboratories, providing briefings by outside industry leaders on R&D Quality for the Senior Management Council, and continuing the implementation of CQI within each organization.

All Plant Operations departments have established CQI councils and identified Process Action Teams, which recommend changes in work systems and monitor their implementation. We have made notable achievements in several areas this year.

Maintenance Windowing. Plant Engineering is using maintenance windows to schedule routine,

preventive, and corrective maintenance. All work in a given facility is scheduled in a window or time frame of three to four consecutive days every three to six months. Maintenance windowing better utilizes maintenance funds for real property and installed equipment, reduces the impact of maintenance on daily operations, and facilitates the most effective deployment of workers and material. Our approach to preventive maintenance resulted in an average facility productivity improvement of 27% and a projected cost avoidance for FY 1994 of $300,000.

Graded Approach Maintenance. Plant Engineering developed and is now implementing a graded approach for both institutional and programmatic systems and equipment. The graded approach allows us to tailor our maintenance resources by analyzing the relative importance of each facility in terms of safety and security requirements, environmental compliance, programmatic needs, and other requirements. This approach to maintenance has been adopted as a DOE standard.

Condition Assessment Survey (CAS). In 1993, the DOE developed the CAS concept as a standard methodology for assessing the physical condition of its facilities. LLNL was selected as the site for testing and implementing the CAS system. Representatives from DOE and the leading CAS contractor visited LLNL in May 1994 to observe our implementation. After a week of intensive review, the DOE declared LLNL a model for all its contractors and asked us to develop presentations at DOE meetings and conferences.

Working with the business departments and new technologies, the Administrative Information Systems department has contributed to a more efficient business environment. The new technologies include document imaging applications, use of digital signature to allow electronic transactions, and broader use of electronic commerce. The objective is to allow users easier access to business data and to improve productivity by reducing time on administrative tasks.

The Library of the Future project in the Technical Information Department is quickly moving toward electronic access to information. Laboratory administrative and personnel policy information is now available on-line, IEEE journals

Highlights for 1994

Plant Operations

- Developed a cleanable steel HEPA filter that could save the DOE $42 million annually.
- Created a simulated highbay for fire-testing drums of hazardous waste.
- Received our second consecutive "100 Best Employers for Bay Area Commuters" award.
- Helped the Center to Protect Workers' Rights evaluate worker exposure to lead paint.
- Established a fiber-channel testbed for independent testing of vendor products.
- Evaluated keyboard designs for their ability to prevent cumulative trauma disorders.
- Connected LLNL to the Bay Area Gigabit Network to develop and deploy a computer multimedia network infrastructure.
- Developed and tested interconnections from our local high-speed networks to the UC network, XUNET, which connects nine research laboratories and universities.

Controller

- Implemented a new financial methodology for distributed and indirect costs.
- Implemented new or improved electronic cost transfers, electronic time entry, automated field budget submission, reimbursable work system, and signature responsibility system.
- Implemented a financial management training program.

Business Operations

- Received a "Best Practice" designation from the DOE for LLNL's property program.
- Received an "Exceeds Expectations" designation from the DOE and UC for our property and procurement programs.
- Reduced the cost of operations by $4 million, and reduced the stores inventory by $3.2 million.

Safeguards and Security

- Implemented major cost-effective initiatives, including automated pedestrian portals between security areas and a reduction of classified workstations.
- Developed and activated the DOE Automated Visitor Access Control System (DAVACS), which eliminates time-consuming, labor-intensive forms and reduces delays.
- Helped develop the DOE Safeguards and Security Systems/Electronic Transfer (DISSS/ET), which automates the security-clearance process throughout the DOE complex.

Human Resources

- Implemented the Resumix system to streamline the employment process.
- Modified the "Term Employment" policy to allow five-year appointments and to attract a well-qualified, flexible work force.
- Opened a Career Center that provides career counseling, skills assessment, and training.
- Documented position responsibilities and duties for 95% of LLNL employees.
- Provided a Management Certificate Program covering team building, financial analysis, and TQM.

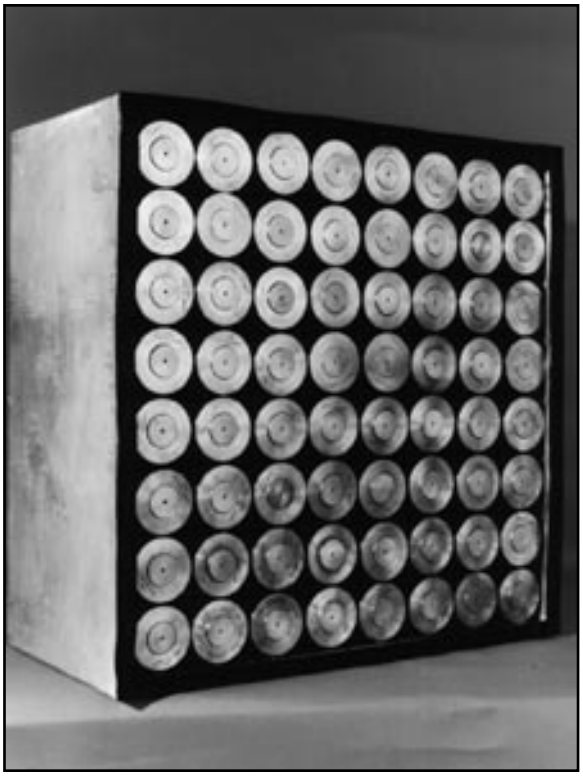
are available via CD-ROM, and unclassified Laboratory reports with unlimited distribution are being made available electronically.

The Telecommunications Systems Department now provides full-service operation around the clock and processed 44.5 million calls in 1994. Among its cost-saving measures were the implementation of a new external network connection that reduces connection costs by $110,000 and reconfiguration of the emergency telephone system for an annual savings of $60,000.

We place high importance on meeting the Laboratory's commitment to ES&H. Several key developments occurred in this area in FY 1994.

CHemical Exchange Warehouse (CHEW). As part of our overall recycling effort, the Environmental Protection Department implemented a process by which unused, excess chemicals could be stored for future use (also see p. 38). This process reduces both the cost of purchasing new chemicals and the Laboratory's waste stream.

Case Management. Improved case management by the Health Services staff has reduced the time lost due to injury. Improved on-site treatment, follow-up, and a managed-care approach have resulted in earlier return to work by employees and reduced long-term disability. The outcome was a reduction in the workers compensation rate with a savings of about $200,000 in FY 1994.



A prototype HEPA filter contains 64 cartridges of stainless-steel fiber media, making it more reliable and environmentally safe than previous paper filters. It can be cleaned in place, saving workers from exposure and eliminating the need for and cost of processing radioactive particulate waste.

Energy Management. The Laboratory's Energy Management Program received five energy-efficiency awards in FY 1994. From the Federal Interagency Energy Policy Committee, we received one Organization Award for energy efficiency and alternative fuels, one Small Group award for water conservation, and one Individual Achievement award. We also received two In-House Energy Management awards from the DOE for water conservation. For the second consecutive year, the Transportation System Management Program received the "100 Best Employers for Bay Area Commuters" award from Rides for Bay Area Commuters for its outstanding contributions in promoting alternatives to driving.

Filter Development. Hazards Control is developing a cleanable, steel, high-efficiency particulate-air (HEPA) filter. This filter could save the DOE $42 million each year in HEPA maintenance and waste disposal costs, and the steel media will improve reliability. The latest prototype exceeded the required 99.97% efficiency for 0.3-mm dioctyl phthalate aerosols. Tests also showed the filter was readily cleanable by reverse air pulses. We are now focusing our efforts on reducing the pressure drop to meet DOE requirements and standard industry practices.

Liquid-Filtration Model. We have developed a theoretical liquid-filtration model that simulates particle removal in realistic liquid filters. The computer code uses rigorous three-dimensional hydrodynamics flow through complex fiber matrices and particle-capture mechanisms due to Brownian motion, inertia, and electrical forces. The model will be used to develop improved liquid filters at a fraction of the cost of the current empirical method.

Plant Operations is striving for additional improvements. Our objectives for the coming year include moving the CQI program to the next level and developing an improved, risk-based budget prioritization system with broad applicability and good correlation with subjective management

judgment. We will also help develop an institutional awareness and understanding of the ES&H performance measures and a system for their timely monitoring and management.

Controller's Organization

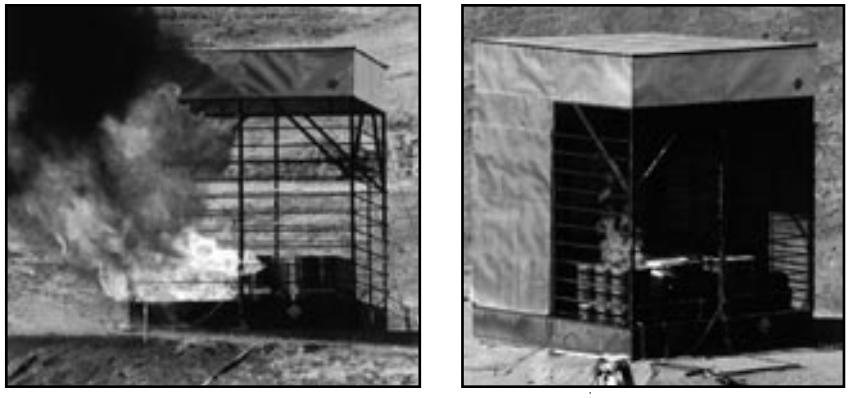
With annual budgets of about $1 billion, were the Laboratory a "for-profit" company, we would be in Fortune magazine's list of the top 500 companies. Instead of reporting to stockholders, however, we are charged with the responsible stewardship of taxpayers' money.

The Controller's Organization helps to ensure that program accomplishments are achieved within the boundaries of good financial business practices. The Lab has a good record in this area, and, in the spirit of CQI, we are trying to reach beyond that achievement. Good financial business practices will always be the top priority for us, and this includes seeking ways for improving the Lab's cost effectiveness and enhancing our customer focus.

We have changed the way we budget and account for distributed and indirect costs. The basis for the new financial system is the separation of distributed personnel management, program management, and facility costs, and the distribution of these costs to the program that receives the benefit. The intent is to provide additional consistency in the distribution of costs across activities, to make costs more visible, and to closely tie the distributed/indirect costs back to all programs on a causal-beneficial basis. The new approach will help managers make more informed business decisions based on true costs, thereby allowing appropriate sizing of activities.

An achievement that has drawn favorable attention outside the Lab is our implementation of automated financial systems. Developed by the Controller's Organization, these systems benefit LLNL programs and operations by providing timely, accurate, and accessible financial information. Recent examples include the electronic cost-transfer system and the electronic time-entry system. The Finance Department, Budget Office, and Resource Information and Analysis Office are involved in systems projects that have gained considerable visibility. As a result, the DOE and other laboratories refer to some of our systems as models to be followed. For example, the DOE is exploring the possibility of adapting LLNL's automated field-budget process for use on a department-wide basis. Future financial requirements are expected to put greater demands on our systems. Thus, we have initiated actions to be ready with appropriate Lab-wide financial systems.

As our financial operations become more complex, it is important that Lab employees who use the system understand it. We continue to expand a curriculum of courses that enables individuals to acquire and maintain the financial skills they need. We are also teaching an overview course on the financial management system for managers, researchers, and others who do not need specialized knowledge in financial management.



Fire testing of flammable liquid waste drums at Site 300. Without controls (left), fire caused a drum of volatile liquid to fail, producing a 4-inch split in the top of a drum and a much larger fire. In a facility with closed sides and no wind (right), we were able to control the fire.

Business Operations

The past year has been one of dramatic change for the Business Operations organization. The process of providing business support to Laboratory programs is increasingly subjected to federal rules as a result of the new UC/DOE contract. We also see greater federal involvement in our operations, most notably in procurement. In response, we rebuilt many administrative systems to more closely model federal practices. Performance measures in Appendix F of the new contract lent a sense of urgency to these changes.

In FY 1994, we received DOE ratings of "exceeds expectations" in both the property and procurement areas. Now that we are in compliance with DOE expectations, we are operating with a new theme: "1995—The year of the internal customer." Our focus is to modernize and

streamline operations so we can minimize the time and cost implications of a more detailed administrative system.

Property became a pressing issue within the DOE due to problems encountered at other sites. In contrast, LLNL's property program—particularly its PRISM information system—was identified as a "best practice" by the DOE. The DOE also highlighted socioeconomic contracting as a primary goal for FY 1994. After receiving ratings of "marginal" in 1991 and 1992, we met and exceeded much higher goals in all categories during the last two years.

Business Operations has embraced the DOE and LLNL quality initiative. This year, we enhanced our operations through the activities of Quality Councils and 17 different Quality Action Teams. To further improve operations and limit management layering, we initiated a re-engineering project to change the ways we perform our work. This, along with reducing our organization from three departments to two, enabled us to reduce our budget request for FY 1995 by $4 million.

Our Stores project represents another major contributor to reduced costs. The Lab's large, antiquated warehouse and store, with an inventory level of over $6 million and an exceptionally high cost of operation, had no automated inventory management system. In less than one year, we reduced the inventory by more than $3 million, eliminated millions of dollars of slow-moving or obsolete items, and reduced the cost of operation by more than $2.5 million.

To modernize our low-value commodity-acquisition process, we will put into place a new inventory-management system. The system will take full advantage of Electronic Commerce, Electronic Data Interchange, and common commercial practices such as "just-in-time" inventory methodology. At the same time, we will take full advantage of the recently signed Federal Acquisition Streamlining Act. Finally, by expanding the Laboratory's credit card program, we can empower our employees to make purchasing decisions in the low-dollar arena.

Our ergonomics lab uses three-dimensional motion-analysis instruments. This sensor-based hand-tracking system can evaluate the use of alternative keyboards and the risks of repetitive-motion problems.

Safeguards and Security

The Safeguards and Security Department is charged with protecting national security information and providing physical security at the Laboratory. Among our efforts, the SAFE Program (which stands for Security Awareness For Employees) identifies and counters foreign intelligence threats against Lab personnel, information, and technologies. Operations Security (OPSEC) is designed to delay or deny an adversary's ability to exploit pathways to our critical and sensitive information.

We continue to address changing Laboratory needs by implementing strategic planning initiatives and pursuing quality improvements. Our managers empower their staff members to continually assess areas of responsibility and to identify alternative approaches that can increase effectiveness and customer satisfaction while meeting the intent of DOE directives. During FY 1994, we completed more than 80 self-assessments and reviewed the resulting issues monthly.

The cost-effectiveness initiatives we implemented in FY 1994 resulted in savings of more than $3.5 million. These initiatives included installing automated pedestrian portals between security areas, consolidating badge operations into the new Westgate badge office, and reducing

classified workstations throughout the Lab. Among the initiatives planned for l995 is the risk-based manner in which services are provided to support a high-security area. We anticipate annual savings of nearly $2 million for Defense Programs.

Unique among DOE labs is an ongoing process to share resources with Sandia National Laboratories, Livermore. Assets and capabilities in excess of $400,000 have been identified to date. Similarly, we focused on redesigning the entire DOE contractor personnel security processing system to achieve end-to-end automation, improve customer service, and reduce costs.

Our department was assigned a rating of "Exceeds Expectations" by both the University and the DOE in FY 1994. The rating was a direct result of management support, dedication, and teamwork across all components of the department.

Human Resources

The Laboratory's most important resource is its people. Human Resources is working to create an environment that encourages individuals to reach their maximum potential for the benefit of both individual workers and the programs that employ them. In seeking to recognize and better understand human differences, our ultimate objective is a diverse, highly talented, and productive Laboratory work force.

The functions of Human Resources include work force planning, education and training, career counseling, and many other activities. Work force planning, for example, involves identifying and recruiting qualified candidates, and retraining and reassigning employees when the objectives of certain programs change. We help to ensure consistent policies, compensation, and benefits. We also make important contributions in the areas of facilitated planning, team building, and quality management.

This year, as requested by the Council on National Security, we facilitated interdirectorate planning groups that will enhance collaboration among LLNL directorates with common program interests, such as High Energy Density Physics and the Primary Program. We worked extensively with associate directors in areas such as business planning, reorganization, and re-engineering. We provided high-level management consultation and process facilitation services to the DOE and UC.

We also responded to the DOE's call for exposure of LLNL leadership and staff to Stephen Covey's writings and to the principles of Total Quality Management (TQM). Several of our staff members are certified to deliver workshops on Covey's Seven Habits of Highly Effective People. Over the last two years, 442 Lab people have graduated, including 87 supervisors and managers.

We have implemented the Resumix system, which allows resumes to be optically scanned, screened, and transmitted electronically. Resumix streamlines the employment process, reduces recruitment costs, and enhances our ability to find qualified candidates, including women and minorities. A new Career Center opened this year to provide employees with skills assessment, training, and information about job opportunities both inside and outside the Laboratory.

Among many other improvements this year, we have put in place an automated benefits enrollment process, an institutional repository of completed courses, and an integrated Human Resources payroll system for FY 1995. Our new documentation on the duties and responsibilities of practically all LLNL career positions will support the Lab's compensation, performance management, and career development objectives.

Summary

The Laboratory's Administration and the Plant Operations Directorate supply the essential services the Laboratory and its programs need to function efficiently. They also ensure that the Laboratory complies with applicable business practices, regulatory requirements, ES&H, and facility maintenance, and that it deals effectively with issues related to work force diversity. In response to the new era in which we operate, including our new UC/DOE contract, TQM, and many other issues, we have made substantial progress in enhancing the management of the Laboratory.

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